BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Petition of Ellipsat Corporation	)	RM-7805
to Amend Sections 2.106, 25.141 and	)	
25.201 of the Commission's Rules	)	

To: The Commission

COMMENTS OF TRW INC.

TRW Inc. ("TRW"), by its attorneys and pursuant to Section 1.405 of the Commission's rules, hereby submits its comments in response to the above-captioned petition for rule making filed by Ellipsat Corporation ("Ellipsat").[1/]

TRW generally concurs with Ellipsat's request that the Commission amend Sections 2.106 and 25.141 of the Commission's

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1/ Concurrently with its petition, Ellipsat filed a request for pioneer's preference that relates to its proposed Ellipso I and Ellipso II low Earth orbit satellite systems. See Ellipsat Request for Pioneer's Preference, File No. ---- (filed July 29, 1991). TRW has no present comment on this request, which has yet to be placed on public notice. In its petition for rule making, however, Ellipsat acknowledges that it filed its petition in an attempt to satisfy a procedural requirement of the Commission's pioneer's preference regulation, 47 C.F.R. § 1.402. See Ellipsat Petition at 3-4 & n.4. The Commission requires that a request for pioneer's preference be filed in conjunction with a rulemaking petition requesting either that spectrum be allocated to a proposed service or that a rule be amended to accommodate proposed new technology. See also Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, 6 FCC Rcd 3488, 3492 (1991).

rules to enable the provision of mobile satellite voice and data services in the 1610-1626.5 MHz and 2483.5-2500 MHz bands. TRW, however, does not believe it is appropriate, as Ellipsat requests, to permit feeder link operations in the 1610-1626.5 MHz and 2483.5-2500 MHz bands. Accordingly, it encourages the Commission to accept Ellipsat's invitation and specify alternative frequencies for these functions.

As explained in TRW's own rulemaking petition,[2/] TRW believes that revision of the Commission's rules to enable the provision of mobile satellite voice and data services in the Radiodetermination Satellite Service ("RDSS") bands -- i.e., the L-Band frequency segment at 1610-1626.5 MHz and the S-Band frequency segment at 2483.5-2500 MHz -- would advance the public interest. See TRW Petition at 4-5; Ellipsat Petition at 4-7. Similarly, TRW concurs with Ellipsat's view that the filing of five applications that propose systems for the provision of radiodetermination satellite services in the RDSS bands, in conjunction with mobile satellite services, is incontrovertible evidence that the RDSS service is viable and worthy of implementation. TRW also agrees that the amendment of the Commission's rules to enable the provision of combined RDSS and mobile satellite voice and data services would allow the Commission to reap the public benefits it identified some

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2/ See RM-7773, filed July 8, 1991.

five years ago when it established the RDSS service. See Amendment of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to, a Radiodetermination Satellite Service, Second Report and Order, 101 F.C.C.2d 650 (1986) ("RDSS Licensing Order").

In fact, TRW's own Petition for Rule Making, RM-7773, advances a number of specific proposals that would allow these objectives to be achieved. There, TRW proposed the establishment of the "Mobile-Enhanced Radiodetermination Satellite Service ("M-E RDSS") in the RDSS bands. Under TRW's M-E RDSS proposal, the Commission's rules would be revised to state that spread spectrum mobile satellite voice and data services that are technically compatible with RDSS services may be provided in the RDSS bands, and the current power flux density limitations in the 2483.5-2500 MHz band would be relaxed modestly to accommodate spread spectrum mobile voice and data transmissions.

Ellipsat's general proposals for revision of Sections 2.106 and 25.141 of the Commission's rules are encompassed within the specific proposals advanced by TRW, and thus would be implemented upon grant of TRW's Petition. To this extent, TRW endorses Ellipsat's petition.

There is, however, one objectionable feature of Ellipsat's petition. Ellipsat requests authority to conduct feeder link operations in the 1610-1626.5 MHz and

2483.5-2500 MHz bands, asserting that feeder link operations "are not expressly precluded in [those bands]." Ellipsat Petition at 7. Ellipsat states that it is willing to conduct its feeder link operations in such other bands as the Commission may specify, including the frequency bands specified in Section 25.202(a)(2). Id. at 7-8.

Although Ellipsat is correct that Section 25.202(a)(2) does not expressly bar the use of the 1610-1626.5 MHz and 2483.5-2500 MHz bands for feeder link operations, a review of the Commission's order allocating spectrum for the RDSS, and its subsequent RDSS Licensing Order, makes clear that the Commission contemplated that feeder link operations for RDSS systems would be conducted in the 5117-5183 MHz band for satellite-to-central station operations, and in the 6525-6541.5 MHz band for central station-to-satellite operations. See Amendment of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to, a Radiodetermination Satellite Service, First Report and Order, 58 R.R.2d 1416, 1421-22 (1985); RDSS Licensing Order, 104 F.C.C.2d at 651 & n.4. The lower segment was subsequently revised to the 5150-5216 MHz band. See 47 C.F.R. § 25.202(a)(2).[3/]

3/ Footnote US307 to the U.S. Table of Allocations specifically states that "[t]he sub-band 5150-5216 MHz is

(Footnote continued on next page)

TRW has undertaken a preliminary evaluation of whether, on an operational level, Ellipsat's proposed feeder link operations in the 1610-1626.5 MHz and 2483.5-2500 MHz bands for the Ellipso II system would conflict with or otherwise hinder TRW's ability to conduct the primary operations (i.e., the user-to-satellite and satellite-to-user transmissions) of its Odyssey system in those bands. On the basis of this analysis, further details of which will be provided in TRW's comments or petition addressing Ellipsat's Ellipso II application (if and when the Commission places the application on public notice), TRW has determined that there is likely to be harmful interference between the Ellipso II and

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(Footnote continued from previous page)

3/ also allocated for space-to-Earth transmissions in the fixed satellite service for feeder links in conjunction with the radiodetermination satellite service operating in the [RDSS] bands." 47 C.F.R. § 2.106, Footnote US307. On its face, this footnote appears to indicate that there is a distinction to be drawn between the radiodetermination satellite service that is to be provided in the 1610-1626.5 MHz and 2483.5-2500 MHz bands, and the feeder link transmissions in the fixed satellite bands that are to support the provision of RDSS service. This impression is confirmed upon reference to the Commission's decision in Amendment of Parts 2, 25, 80, and 87 of the Commission's Rules Regarding Implementation of the Final Acts of the World Administrative Radio Conference for the Mobile Services, Geneva, 1987, 4 FCC Rcd 7603, 7604 (1989) (Commission discusses "the RDSS feeder links band" at 5150-5216 MHz and 6525-6541.2 MHz; creates impression that these are the only frequencies available for use as RDSS feeder links).

Odyssey systems as a result of Ellipsat's L-Band and S-Band feeder link operations.

Specifically, Odyssey satellites are likely, under certain conditions, to suffer harmful interference from the Ellipsat central station-to-satellite L-Band link when Ellipso II satellites are lined up with Odyssey satellites, as the transmissions of the Ellipso II ground control station could cause interference to the Odyssey satellite beam that is pointed at that station. In addition, it appears that the standard Odyssey uplink operations in the 1610-1626.5 MHz band could cause interference to the Ellipso II system L-Band feeder link operations, particularly when both systems are fully loaded. Interference into Ellipso II S-Band feeder link transmissions could also be observed when an Ellipso II satellite and an Odyssey satellite are lined up as seen from the Ellipsat ground control station.

In sum, the low effective isotropically radiated power ("EIRP") of the Ellipso II satellites leaves the Ellipsat system S-Band feeder links vulnerable to interference whenever the Ellipsat ground control station is pointing at or near an Odyssey satellite. At the same time, the use of the 1610-1626.5 MHz band for feeder link operations, combined with Ellipsat's small-size satellites and relatively low gain antennas, means that the Ellipsat ground control stations must transmit with an EIRP many times greater than the standard user

transmissions of other systems. As a result, Ellipsat's L-Band feeder link operations for the Ellipso II system will be a source of interference to other systems such as the one proposed by TRW.

Accordingly, TRW opposes this aspect of Ellipsat's petition. TRW urges the Commission to take Ellipsat up on its offer, and identify alternative frequency bands that Ellipsat should specify for the feeder link operations of its proposed Ellipso I and Ellipso II systems.

Conclusion

On the basis of the foregoing, TRW supports Ellipsat's petition to the extent that it is consonant with, and encompassed within TRW's own pending Petition for Rule Making (RM-7773). TRW, however, opposes Ellipsat's request for authority to conduct feeder link operations in the 1610-1626.5

MHz and 2483.5-2500 MHz bands, on the ground that such operations will interfere with or otherwise hinder primary operations that are proposed by TRW and others in those bands.

Respectfully submitted,

TRW Inc.

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October 16, 1991

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TECHNICAL CERTIFICATE

I, Paul Locke, hereby certify that I am the technically qualified person responsible for preparation of the technical information contained in the foregoing Comments of TRW Inc. Under penalty of perjury, the technical information presented is complete and accurate to the best of my knowledge.

Dated this 16TH day of October 1991

By: Paul Locke

Paul Locke
Consulting Engineer

CERTIFICATE OF SERVICE

I, Katharine K. Bryant, do hereby certify that a copy of the foregoing "Comments of TRW Inc." was mailed, first-class postage prepaid, this 16th day of October 1991, to the following:

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